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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,986	07/03/2003	Takayoshi Togino	12219/35	4181

7590 05/03/2005  
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EXAMINER

PHAN, JAMES

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/611,986	<b>Applicant(s)</b> TOGINO, TAKAYOSHI	
	<b>Examiner</b> James Phan	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/3/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Group II, including claims 11-27, in the reply filed on 2/9/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 1-10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse (see above) in the reply filed on 2/9/05.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 7/3/03 has been considered.

### ***Additional Prior Art Cited***

Togino et al discloses an image display apparatus comprising an optical system having a decentered prism; and Kajiki discloses an image display apparatus having a diffuser located near a scanned surface.

***Claim Rejections - 35 USC § 112***

Claims 11-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "said second reflecting surface" in line 18. There is insufficient antecedent basis for this limitation in the claim. Should "said second reflecting surface" be changed to --a second reflecting surface-- or --said at least one reflecting surface--?

Claim 27 recites the limitation "said diffusing surface" in line 2. There is insufficient antecedent basis for this limitation in the claim. Should "11" be changed to --12--?

Claims 12-26 are also rejected in that they are dependent on the indefinite claim and thus inherit the deficiency above.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 24-26 are rejected under 35 U.S.C. 103(a) as being obvious over Togino et al in view of Japan document 2001-281583 to Keiichi.

Togino et al discloses an image display system comprising a light source (29); a scanner unit including a vertical scanner (30) and a horizontal scanner (26) for scanning a light beam from the light source in a 2-D direction; a scanning optical system having a decentered prism (10) including at least a non-rotationally symmetric surface; and an eyepiece optical system (prism 20) located near a surface to be scanned (see Figs. 7 and 9 and the accompanying text). The eyepiece optical system includes a concave reflective surface (23) having a positive power for converting and projecting the scanned light into the observer's eyeball; and the decentered prism (10) has an entrance surface (half-coated mirror surface 12), at least one reflecting surface (12,13), and an exit surface (14).

The difference between the claimed invention and the discussed prior art is the scanner unit. The claimed invention specified the scanner unit having a gimbal structure; and the prior art specified the scanner unit having two separate structures including a polygon mirror (26) and a galvanomirror (30). However, the use of a scanner unit having a gimbal structure is well known in the art for compactness and low power consumption (see Keiichi, Fig. 3 and page 10, paragraph 0130). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the polygon mirror (26) and the galvanomirror (30) of the scanner unit in Togino et al with the scanner unit having a gimbal structure as taught in Keiichi so as to make the scanner unit in Togino et al more compact, lower power consumption and higher quality (note that at least the elimination of the use of the polygon mirror (26) which generates heat due to high rotational speed would prevent or reduce heat builds up and

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thus eliminate or reduce image distortion caused by the changes in temperature); and thus, improve the image display system.

In re claims 24-25 the use of a Fresnel lens instead of a prism having curved reflective surfaces for an eyepiece/ocular system is well known in the art for providing uniform illumination density over the entire image plane; it is also well known that lens is analogous to mirror. Thus, it would have been obvious to one skilled in the art to use a Fresnel lens (claim 24) or a Fresnel reflecting mirror (claim 25) instead of a prism having curved reflective surfaces for an eyepiece/ocular system as an alternative for the common feature.

In re claim 26 the "Fresnel back-surface mirror" recited in the claim also provides similar feature as that of the Fresnel reflecting mirror discussed above. Thus, it would have been obvious to one skilled in the art to use Fresnel back-surface mirror instead of a prism having curved reflective surfaces for an eyepiece/ocular system as an alternative for the common feature, i.e. providing uniform illumination density over the entire image plane.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Togino et al in view of Japan document 2001-281583 to Keiichi as applied to claims 11 and 24 above, and further in view of Kajiki.

Togino et al in view of Keiichi as applied to claim 11 and 24 above discloses all claimed feature except for a diffusing surface located near the surface to be scanned. Kajiki discloses an image display apparatus having a diffusion plate (20) located near a

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surface to be scanned in front of an observer (21) for scattering the light in a solid angle region predetermined by its characteristics (Figs. 9-10 and the accompanying text) so that the scanned image can be viewed by the observer at different angles. Thus, it would have been obvious to one skilled in the art to modify the image display system in Togino et al a by positioning a diffusion plate near the surface to be scanned (exit pupil 1) in front of an observer's eyeball for increasing the viewing angle.

### ***Allowable Subject Matter***

Claims 13-23 and 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: none of the cited references teaches or suggests an image display system having (1) two diffusing surfaces (claim 13); (2) particular diffusion angle with particular decrease of light intensity (claims 14-15); a pair of left and right 2-D optical scanner sharing a common eyepiece optical system (claim 16); (3) a diffusion surface provided on at least one surface of the eyepiece optical system (claim 27; assuming this claim is dependent on claim 12); and (4) claims 17-23 are directly or indirectly dependent on claim 16 and thus allowable at least for the same reason.

### ***Conclusion***

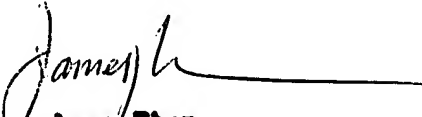
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Phan whose telephone number is (571) 272-2317. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP  
May 1, 2005

  
**James Phan**  
**Primary Examiner**